
(12) UK Patent Application (19) GB (11) 2 027 662 A

(21) Application No 7832924
(22) Date of filing 10 Aug 1978
(23) Claims filed 10 Aug 1978
(43) Application published
27 Feb 1980

(51) INT CL³
B65D 85/00 A23F 5/00

(52) Domestic classification
B8C 15B 23 30
A2B 331 402 411 509
660 BD

(56) Documents cited
GB 1401013
GB 1385257
GB 1307637
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GB 1204900
GB 1066186
GB 1053933
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GB 412097

(58) Field of search
A2B
B8C

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(54) Coffee Bags

(57) A coffee bag is described in which the bag material is coated or impregnated to reduce aroma loss and which may contain water-insoluble material or substance to reduce to prevent agglomeration of the coffee grains, e.g. an inert particulate material which separates or reduces

contact between the grains. The bags can also contain natural wetting agents and materials for adsorbing undesired coffee constituents, e.g. caffeine. The bag-impregnating or coating materials may be pectins, agar-agar, starch syrup, carboxymethyl cellulose, and sodium salts of the latter. The coffee grains preferably have a grain size of 0.1 to 0.25 mm.

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SPECIFICATION

Coffee Bags

The present invention relates to a filter bag for coffee drink preparation, that is, a coffee bag for the preparation of the aqueous extract of the flavouring, aromatic and active substances of roasted coffee beans, known as coffee, or more precisely, coffee drink.

It has been conventional for a long time to prepare coffee drink by pouring and filtering ground coffee or ground coffee mixtures or also by dissolving coffee extracts. Although the coffee extracts can easily be converted into the desired coffee drink, they are inferior in flavour to the coffee drink prepared directly from ground coffee. On the other hand, the preparation of coffee drink from ground coffee is expensive and time-consuming and requires equipment such as coffee machines, filter containers, filters and filter paper, etc. These aids to preparation are not only expensive, but they also have to be cleaned.

There is therefore a need for a method of making the coffee drink directly from ground coffee without the usual apparatus and equipment. For the preparation of tea drink, filter bags filled with tea or tea bags have been popular for a long time and enable the tea drink to be prepared simple, quickly and cleanly.

It is not possible simply to fill a filter bag corresponding to a tea bag with coffee, since it has been shown that immersion in boiling water, in the preparation of the coffee drink, the coffee agglomerates and allows only an extremely unsatisfactory extraction of the flavouring and active substances contained in it. Further, there can be loss of aroma during storage.

I have now found a filter bag for coffee drink preparation which permits simple, rapid and, if possible, complete extraction of the desired flavouring, aromatic and active substances of the coffee which shows only slight, if any, loss of aroma during storage and which also enables undesirable or harmful coffee constituents to be retained selectively.

Thus the invention provides a filter bag for coffee drink preparation (i.e. a coffee bag) which comprises a filter bag made of an impregnated or coated filter membrane and contains ground coffee or a mixture of ground coffee and one or more neutral anti-agglomerating materials.

I have found that agglomeration of the coffee during brewing and loss of aroma of the ground coffee present in the bag can be prevented with bags of this kind.

The term coffee used herein means conventional roasted coffee or corresponding coffee mixtures in ground form. However, this term also refers to coffee which may have had its caffeine content and/or its flavour modified by pretreatment and which may be replaced wholly or partly by coffee substitutes or contain coffee additives.

Agglomeration of the coffee contained in the filter bag can be reduced by a coarser degree of

grinding of the coffee, the filter bag preferably containing ground coffee with a grain size of 0.1 to 0.25 mm.

The coffee can also be mixed with neutral anti-agglomerating materials which prevent the coffee from agglomerating during brewing. These "anti-agglomerating" materials, as they are referred to herein, act to reduce or prevent agglomeration or caking of the coffee by keeping the grains physically separate or free or loose. In other words, they act as a filler or barrier material with the object of preventing or reducing contact between the grains which might result in agglomeration and hence in poor extraction. The materials are used in particulate form and are preferably water-insoluble, inorganic compounds of neutral flavour which are not dissolved to any substantial extent during boiling of the coffee and undergo no reactions which lead to products of perceptible flavour or which impair the aroma of the coffee drink. Inorganic materials of this type are for example calcium carbonate, magnesium silicate and aluminium silicate, e.g. in their natural forms such as limestone, kaolin, alumina and meerschau, and pure or purified natural materials can be used directly in powder or ground form. These neutral materials are employed in a quantity sufficient to achieve the desired effect, for which purpose quantities are adopted which range generally from approximately 0.1 to 100%, preferably from 1 to 50%, relative to the coffee. The materials advantageously have a particle size similar to or smaller than that of the ground coffee, a grain size of 0.1 to 0.25 mm.

According to a further preferred form of the invention, the coffee or the mixture of coffee and anti-agglomerating materials is mixed with one or more natural wetting agents, in order further to restrict the agglomeration of the coffee during brewing or in order to accelerate extraction of the desired flavouring and active substances. It is possible to use as natural wetting agents of this type, for example, compounds which are obtained from plants, are harmless to the enjoyment of the coffee drink and do not modify or impair its flavour. Such natural wetting agents are well known in the art. Examples of products of this type are the so-called saponins.

The actual filter bag of the coffee bag according to the invention is made of a filter membrane which may be made of a filter paper of neutral flavour of natural or synthetic fibres which is resistant to boiling coffee. The fibres suitable for making this filter paper must be resistant to the temperatures reached during boiling of the coffee and should not give off any flavour-modifying substances or retain the desired constituents of the coffee drink. The filter paper used to make the filter bag can be made for example, of cellulose fibres, such as cotton and rayon fibres, polyacrylonitrile fibres or polyester fibres.

The filter paper of the filter bag is impregnated or coated according to the invention with inert materials of neutral flavour, so that the loss of

aroma of the ground coffee contained in the filter bag is prevented or at least severely restricted. The materials used for the coating and/or impregnation of the filter paper or filter bag are preferably inert materials of neutral flavour of vegetable origin, such as pectins, agar-agar, carboxymethyl cellulose, and the sodium salts of carboxymethyl cellulose (for example, the commercially known products Polyfibrin, Cellufix or Methylcellulose), as well as glucose products obtained by the sugaring of starch and known as starch syrup. Impregnation or coating of the filter paper with pectins is especially preferred, since pectins are neutral in flavour and impart a certain creaminess to the coffee.

Further, it is of advantage according to the invention to pellet the ground coffee or the mixture of ground coffee and anti-agglomerating materials and optionally the natural wetting agents, that is to compress it into a cylindrical or block-shaped pressed form e.g. so that the free surface of the material is reduced to approximately 1 hundredth of the original free surface. This makes it possible further to restrict losses of aroma without prejudicing the rapid extraction of the desired coffee flavouring or active substances.

As is known, stimulants such as caffeine or chlorogenic acids are contained in coffee and can be harmful to sensitive or disturbed organs and it is desirable in many cases to remove these stimulants from the coffee drink or at least reduce the quantity in which they are contained therein. In general, this is achieved by subjecting the coffee during manufacture to an appropriate pre-extraction treatment. With the filter bag or coffee bag according to the invention it is possible to eliminate these undesirable stimulants at the time the drink is prepared. To achieve this, the filter membrane may be coated and/or impregnated or contain one or more adsorbents which adsorb the undesirable or harmful constituents. These adsorbents can also be present as an adsorbent layer between two porous sheets of filter membrane. Also, these adsorbents can be added to the ground coffee or pelleted therewith. The materials used as adsorbents may for example be inorganic or organic ion exchangers or molecular sieves, or they must of course be neutral in flavour and harmless. Particularly preferred ion exchangers are ion and cation exchangers available commercially under the names Lewatit, Amberlit and Permutit, especially Lewatit SP 080, CP 3050, MP 5080 and MP 7080.

To prepare the coffee drink with the filter bag or coffee bag of the invention it is merely necessary to place the coffee bag in a cup or pot with boiling water and allow it to soak for a sufficiently long time to develop the desired aroma. Since the coffee bag can be stored without loss of aroma and enables the coffee drink to be prepared quickly and simply, it represents a considerable improvement.

Claims

1. A filter bag for coffee drink preparation which comprises a filter bag made of an impregnated or coated filter membrane and contains ground coffee or a mixture of ground coffee and one or more neutral anti-agglomerating materials.
2. A filter bag as claimed in claim 1 wherein the anti-agglomerating material is an inert water-insoluble inorganic compound of neutral flavour.
3. A filter bag as claimed in claim 2 wherein the anti-agglomerating material is calcium carbonate, magnesium silicate, aluminium silicate, limestone, kaolin, alumina or meerschaum in ground form.
4. A filter bag as claimed in any one of the preceding claims where the coffee is coarse-ground.
5. A filter bag as claimed in claim 4 wherein the coffee has a grain size of 0.1 to 0.25 mm.
6. A filter bag as claimed in any one of the preceding claims wherein the ground coffee of the mixture of ground coffee and anti-agglomerating material is pelleted.
7. A filter bag as claimed in any one of the preceding claims wherein the coffee or the mixture of ground coffee and anti-agglomerating material contains one or more natural wetting agents.
8. A filter bag as claimed in claim 7 wherein the wetting agent is a harmless compound of neutral flavour of plant origin.
9. A filter bag as claimed in claim 8 wherein the wetting agent is a saponin.
10. A filter bag as claimed in any one of the preceding claims wherein the filter membrane is made of a filter paper of neutral flavour of natural or synthetic fibres which is resistant to boiling coffee.
11. A filter bag as claimed in any one of the preceding claims wherein the filter membrane is impregnated or coated with one or more inert materials of neutral flavour.
12. A filter bag as claimed in claim 11 wherein the filter membrane is impregnated or coated with an inert material of neutral flavour of vegetable origin.
13. A filter bag as claimed in claim 12 wherein the filter membrane is impregnated or coated with pectin, agar-agar, carboxymethyl cellulose, sodium carboxymethyl cellulose or a glucose product obtained by the sugaring of starch.
14. A filter bag as claimed in claim 11 wherein the filter membrane is coated and/or impregnated with or contains one or more adsorbents which adsorb undesirable or harmful constituents of the coffee.
15. A filter bag as claimed in claim 14 wherein the adsorbent is present as a layer between two porous sheets of filter membrane.
16. A filter bag as claimed in claim 14 or claim 15 wherein the adsorbent is an ion exchange material.

17. A filter bag as claimed in any one of the preceding claims wherein the ground coffee is

mixed or pelleted with one or more adsorbents for undesirable or harmful constituents of the coffee.

Printed for Her Majesty's Stationery Office by the Courier Press, Leamington Spa, 1980. Published by the Patent Office,
25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.